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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/536,460	03/28/2000	Joseph Hayden	SGT-34-P1	5114

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EXAMINER
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SANGHAVI, HEMANG

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/536,460	<b>Applicant(s)</b> HAYDEN ET AL.	
	<b>Examiner</b> Hemang Sanghavi	<b>Art Unit</b> 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 15-18 and 30-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2, 15-18 and 30-33 is/are allowed.
- 6) ☒ Claim(s) 1, 3-5 and 34-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

In response to the applicant's amendment received on May 29, 2003, all requested changes to the claims have been entered.

Applicant's arguments with respect to claims 1 and 33 have been considered but are deemed to be moot. See Remarks section below.

### ***Allowable Subject Matter***

Claims 2, 15-18, and 30-33 are allowed over the prior art of record. The prior art fails to disclose or suggest the claimed athermal optical element comprising a surface of crystalline, cubic material with a surface figure of  $<200$  nm and material having property of  $dn/dT = -\alpha$ .

Nor does the prior art disclose or suggest an athermal, optical composite material comprising two layers of different compositions, wherein the total optical pathlength across the two layers is essentially independent of temperature. Note, Shirasaki reference require at least three layers to achieve temperature insensitivity.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-5, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hares et al (US 4,190,451).

Hares et al discloses an optical element (photochromic glass) comprising a silver chloride. See Abstract. The optical element is an athermal since the glass has property of being independent to temperature.

Hares et al fails to disclose a surface figure of less than 200 nm for the silver chloride.

However, as well known in the art that actual threshold and long lifetime of crystalline structure such as silver chloride or cesium bromide can greatly depend on the surface preparation. Surface figure is a measurement of the deviation from an ideal surface in terms of waves, peak to valley. The materials disclosed in Hares et al are usually polished and provided with desired thickness to perform photochromic application. Also, specification lacks criticality as to the surface figure of <200 nm and does not solve any stated problem.

From collective well known techniques, the ordinary artisan would have found it desired to provide optimum surface figure, i.e. less than 200 nm in the Hares et al reference for the purpose of advantageously providing an efficient long life glass.

As to claims 3-5, providing a coating or attaching the glass to substrate are well known techniques in order to provide desired application and use of the glass. Also note that the glass of Hares et al is used in the field of ophthalmic lenses, both as prescription lenses and as non-prescription sunglasses. Such use of the glass requires coating or attaching the glass to substrate. From available well-known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide a coating to the glass or attached the glass to a substrate for the purpose of using such glass in the field of ophthalmic lenses.

Claim 34 is further rejected under 35 U.S.C. 103(a) as being unpatentable over Downing (US 5,914,807).

Downing discloses an optical element including a cesium bromide (see lines 1-3 of column 10).

Downing fails to disclose a surface figure of  $<200$  nm for the cesium bromide.

However, as well known in the art that actual threshold and long lifetime of crystalline structure such as silver chloride or cesium bromide can greatly depend on the surface preparation. Surface figure is a measurement of the deviation from an ideal surface in terms of waves, peak to valley. The materials disclosed in Downing are usually polished and provided with desired thickness to use in the laser. Also, specification lacks criticality as to the surface figure of  $<200$  nm and does not solve any stated problem.

From collective well known techniques, the ordinary artisan would have found it desired to provide optimum surface figure, i.e. less than 200 nm in the Downing reference for the purpose of advantageously providing an efficient long life laser.

***Remarks***

Applicant's arguments are deemed to be persuasive for the following reasons.

At page 5 of the amendment, applicant argues that there is no motivation of record to support the examiner's contention that anything in the cited prior art would motivate a skilled worker to employ the surface figure recited in the claims. The Hares reference gives no reason to provide a surface figure of <200 nm. Applicant further argues that there is no support for the contention that would lead a skilled worker to provide a surface figure of less than 200nm.

In contrast, it should be noted that the above rejections are based the primary reference (Hares and Downing) and well known techniques. Examiner takes position that it is certainly well known in the art to provide proper thickness and roughness (i.e. surface figure of less than 200 nm). Examiner cites following references to credence well-known techniques.

Conzone et al (US 6,652,972)

Conzone et al clearly states that in general, the surface figure of less than 200 nm achieves better optical quality (see lines 34-66 of column 7 and lines 21-24 of column 8).

Dexter et al (US 5,364,819)

Dexter et al discloses a glass with a surface quality of about 1/20 to 1/30 of the operating wavelength at 632.8 nm. (i.e. surface figure of 21.09 to 31.64 nm). See lines 10-15 of column 3 and lines 20-30 of column 5).

Conzone et al (US 2002/0192422)

Conzone et al also discloses a glass which is polished to provide surface figure of 200 nm. See [0071] and [0073].

From the above cited references, examiner contention of the well known statement is clearly supported. Again, polishing the surface of the glass providing surface figure of less than 200 nm would be obvious based on well known technique.

At page 5 of the amendment, applicant argues that the invention utilizing, for example, silver chloride or cesium bromide, in e.g., demultiplexer applications at wavelengths where such a surface figure is important.

In contrast, there is no support in the specification for such contention by applicant that the surface figure being less than 200 nm is important. Nor does applicant claims demultiplexer.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the


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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hemang Sanghavi whose telephone number is (571) 272-2358. The examiner can normally be reached on Monday-Thursday (8:30 AM-6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hemang Sanghavi  
Primary Examiner  
Art Unit 2874

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